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APRIL

1949

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EDITORIAL



INSTITUTE MEMBERSHIP

A recent survey of Divisional membership returns reveals some interesting facts which are of importance to the growth and development of the Institute.

Whilst the proportion of full members to A.O.C.P. holders is still maintained at its usual high level, there is nevertheless an indication that some Divisions are not fully cognisant of the desirability of enlisting in our ranks many of those who were trained in radio factories and signals or radar units during the War. Apart from the need for attracting these people into the Institute, there is the national asset aspect to be considered, as all those with an up-to-date knowledge of the electronic art provide a vital nucleus in times of emergency.

There is also a large proportion of existing members who are not A.O.C.P. holders who should be encouraged at the earliest opportunity to qualify for this certificate and thus become full members of the Institute.

The figures under review further reveal that while some of the smaller Divisions are show-

ing marked improvement in recruiting, the larger Divisions are not maintaining the high level of new members recently attained. It is desirable that all concerned investigate this question to ascertain whether proper and effective efforts are being made to attract and assist those interested in the radio art. We look to the larger Divisions to set the lead in this respect as their prospective members are more plentiful than in the smaller Divisions.

The objects of the Institute shall be to encourage and assist all persons interested in any or all aspects of Amateur Radio and allied techniques and to promote the extension of interest and active participation and co-ordination in such pursuits as the above.

We are naturally anxious that all Divisions should always bear these important objects in mind, and by their activity in this direction, strengthen our membership throughout the Commonwealth.

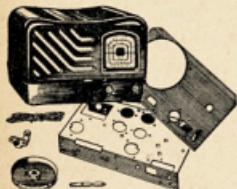
—Federal Executive.

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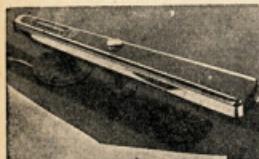
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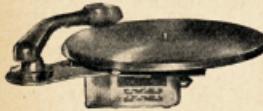
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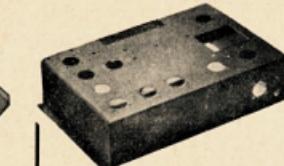


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A HIGH STABILITY, V.F.O.

BY ERN MARSTELLA,* VK2AEZ

Some months ago a new type of oscillator, known as the "Clapp," was featured in "QST," for which very high stability was claimed, and as this oscillator appeared to have good possibilities, the Writer decided to build up a v.f.o. incorporating it, and check its performance.

On completion of the v.f.o., and with the necessary adjustments, it was found to be equal, and in some cases better than some crystals for stability, staying in zero beat with a local b.c. station for four hours. It was then decided the unit was the "answer to a Ham's prayer"—variable frequency with crystal stability, that is not an idle boast.

Another feature of the oscillator is that after allowing a minute or so for tube warm up, it can be used immediately, without any trace of drift. This is an important point, if the Transmitter is put on the air at short notice, when chasing that elusive new country.

Only one fault appeared when the v.f.o. was first put into operation. A faulty 6J5 caused the frequency of the oscillator to jump and drift, but on replacing the tube the trouble vanished.

It is important to remember there is more in building a v.f.o. than putting the necessary components together, so a word of warning to those who wish to build a v.f.o. for the first time.

Variable condensers tuning the oscillator **must** be good, no backlash, end play, slackness in the bearings, etc. Coils should preferably be air wound, and held together with cemented strips. If formers are used, they should be ribbed and the material used in their construction should be non-porous. Fixed condensers should be silver mica, but these are not readily available here. Mechanical and electrical stability are vitally important, and all wiring should be in heavy gauge wire, and all components rigidly mounted. If we all took more trouble to watch our components, wiring, etc., we would benefit much from it.

The Writer was fortunate in having an American "Cardwell" condenser, with straight line tuning, which had very good bearings, and was double spaced, the plates being of very heavy gauge aluminium.

Referring to the schematic diagram, it will be seen that the oscillator resembles that of the Colpitts, feedback being controlled by the ratio of C4 to C5, and differs from normal methods of

feedback inasmuch as the circuit uses capacity instead of inductance. Frequency is determined mainly by L1, C1, C2, C3 in series, in parallel with the resultant of C4 and C5 in series.

To locate the band, use all wave receiver, and leaving L1, C4, and C5 unaltered, find its frequency of operation. Then bring the frequency to 3.5 Mc. by adjusting C2 and C3.

The inductance L1 is 16½ turns of 22 gauge enamelled wire, slightly stretched, and close wound on a 1½" ribbed former. Make sure the inductance and condensers are mounted in such a way that they are not effected by heat from nearby components. The grid circuit resonates in the 3.5 Mc. band.

The rest of the circuit is self explanatory. V1, the oscillator, is a 6J5, but a 6SJ7, triode connected, or a 6AC7 also triode connected, operate just as well, although calibration will alter if the valves are changed. It might be a good idea to use a small variable condenser across C1, C2, C3 to adjust for difference in frequency. The output of the oscillator is taken from the cathode to minimise loading effects, thereby reducing the output somewhat. Coupling can be done from the plate in the normal manner, but the cathode method of taking the output was found to be the best.

The second stage uses a 6SK7, or equivalent, and functions as an isolator. It is needed to isolate the oscillator from the power stages, which would react on the frequency of the oscillator if coupled

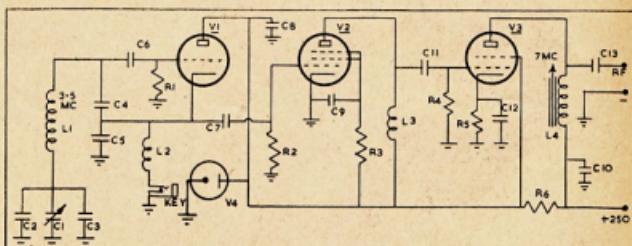
directly to it. Two isolating stages may be used for complete isolation if desired, by adding another identical 6SK7 stage. The output from such untuned stages is small but lessens the chances of frequency change.

The third stage uses a 6V6G as a doubler, doubling from the fundamental frequency of 3.5 Mc. to 7 Mc. The output is tuned by a perma-tuned coil, which has a diameter of 9/16ths, and was originally a short wave coil. The old windings were removed, and the former wound with 34 turns of 32 gauge enamel, close wound, and so placed that the movable iron slug can be varied from right out, to right through the coil. The resonant point is very broad, and when found adjust to the centre of the band. If you care it can be arranged to have normal tuning with a condenser, by bringing the shaft through the front panel, and reducing the turns on the coil slightly so that the circuit will tune to 7 Mc.

Output of the v.f.o. is fed to the crystal socket if a 7 Mc. crystal is used. If the crystal is 3.5 Mc., it would be better to have the plate of the 6V6G untuned (the same as the isolator stage), and feed to the crystal socket in the normal manner. It is advisable to see that the r.f. chokes are different in both plate circuits, otherwise oscillation may occur.

Voltages for the 6J5 plate, 6SK7 plate and screen, and 6V6 screen, are voltage regulated by a VR150/30, but will work quite well without a regulator, as voltage has very little effect on frequency. The voltage on the screen of the 6SK7 should not exceed 80 volts for best results. The supply voltage to the plate of the 6V6G is 250, and the r.f. output compares favourably with the average crystal.

(Continued on page 7)



C1—100 pF. variable (see text).

C2—100 pF. silver mica.

C3—150 pF. " "

C4—0.001 uF. " "

C5—0.001 uF. " "

C6—0.0001 pF. "

C7—0.0001 pF. mica.

C8—0.05 uF. paper.

C9—0.01 uF. "

C10—0.1 uF. "

C11—0.0001 pF. mica.

C12—0.01 uF. paper.

C13—0.0001 pF. mica.

R1—100,000 ohms, carbon.

R2—50,000 " " ".

R3—3,000 " w.w. 10 watts.

R4—100,000 " carbon.

R5—400 " w.w.

R6—2,500 " 10 watts.

V1—6J5 (or 6SJ7 as triode).

V2—6SK7.

V3—6V6G.

V4—VR150/30.

L1—See text.

L2—2.5 mH. R.F.C.

L3—2.5 mH.

L4—See text.

* Terrigal Road, Erina, N.S.W.

REWINDING D.C. RELAYS

BY A. K. HEAD,* VK3AKZ

If you have collected a variety of relays, working on different voltages, then it is rather difficult to find an economic way of energising them. One way is to have a small metal rectifier per relay and provide the various voltages necessary. This is quite feasible with the present availability of 10 Ma. rectifiers at a few shillings each in displays.

A more satisfactory way is the re-wind the relays so as to all work on the same voltage. Then one big metal rectifier can supply the lot; and to make the rewinding easy there is a simple rule for calculating the new winding. All you need do is:—

(i) Measure the gauge of wire used in the old winding.

(ii) Mark the depth to which the bobbin filled by the old winding.

(iii) Rewind the bobbin to the same depth with the new wire (the gauge of which is worked out as described later). No need to count turns, just wind on

wire until the new winding occupies the same volume as the old.

(iv) The gauge of the new wire can be found from the rule: To double the operating voltage rewind with wire three gauges thinner than the old wire; to halve the operating voltage rewind with wire three gauges thicker than the old wire.

Or if you want to change the voltage in some other ratio, then change the wire gauge as in the following table:—

| Voltage Ratio | Change in Gauge |
|---------------|-----------------|
| 1.3 | 1 |
| 1.6 | 2 |
| 2 | 3 |
| 2.5 | 4 |
| 3.2 | 5 |
| 4 | 6 |
| 5 | 7 |
| 6.3 | 8 |
| 8 | 9 |
| 10 | 10 |

(v) When a relay has been rewound by this rule, the current it draws will change inversely as the voltage ratio, e.g., if a 24 volt 50 Ma. relay is rewound to operate on 12 volts, then as the

operating voltage has been halved, the new operating current will be double, i.e. 100 Ma.

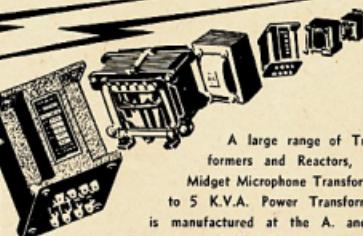
To illustrate this method, suppose a 24 volt, 480 ohm relay is to be rewound for 12 volt operation. The wire of the old winding is measured and found to be 28 B. & S. Since we want to halve the operating voltage, it must be rewound with wire three gauges thicker, i.e. 25 B. & S. So the old winding is stripped off and the bobbin rewound to the same depth with the new wire. Originally it drew 50 Ma. so with the new winding it will draw 100 Ma.

If you want to change the voltage in a ratio which is not given in the table, then the nearest entry will be good enough, e.g. in rewinding from 18 volts to 6 volts, changing the wire gauge by five will do.

These rules are only true for enamelled wire—so don't try to use them for silk or cotton covered wires. This is because of the larger volume taken up by these insulations. They also only apply strictly when the gauges are measured in B. & S., but for practical purposes they also apply to S.W.G.

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IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

APRIL 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

These charts refer to the following world zones:

| Zone | Region | Terminal |
|------|-----------------|---------------|
| 1 | Western Europe | London |
| 2 | Mediterranean | Cairo |
| 3 | N.-West America | San Francisco |
| 3a | N.-East America | New York |
| 4 | Central America | Barbados |
| 5 | South Africa | Johannesburg |
| 6 | Far East | Manila |

The forecasts have actually been prepared for point-to-point circuits between either Canberra or Perth and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South-Eastern Australia and from Western Australia to the various world zones. No forecasts are given from Perth to zones Z2 and Z4 for the current month. Chart P-Z2 would be essentially similar to P-Z1 while chart P-Z4 would be unreliable due to auroral activity in high northern latitudes.

USE OF CHARTS

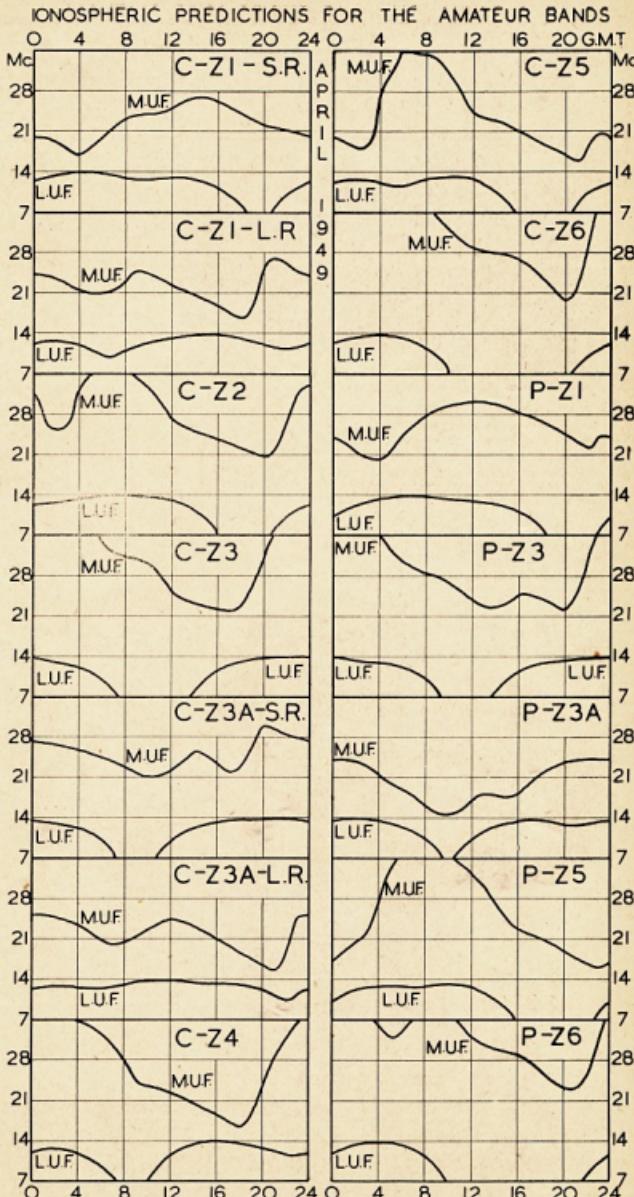
All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, zones 1 and 3a, it is necessary to consult both the short-route (s.r.) chart and the following long-route (l.r.) chart.

QUIZ

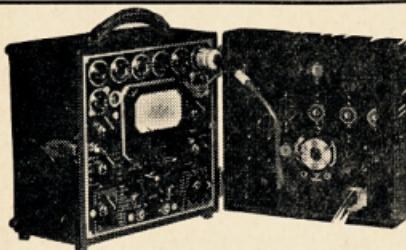
The Prediction Service welcomes comments on the accuracy of its predictions. In particular answers to the following questions on the Canberra-Cairo circuit for April would be useful.

- Was the 28 Mc. band open consistently during the periods 0400 to 1200 hours and 2200 to 0100 hours G.M.T.?
- Was the 14 Mc. band open, but noisy, from midnight to noon G.M.T.?
- Were conditions good on the 14 Mc. band throughout the period 1500 to 2300 hours G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.



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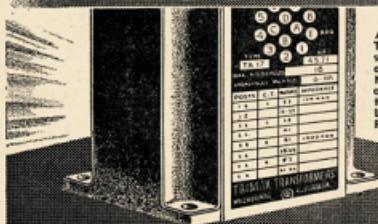
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PARALLEL CATHODE MODULATION

Some Light On A Little-Known System
BY GORDON N. HARLEY,* VK4GH

The Modulator here described has aroused very favourable comment from stations contacted and so many requests for detailed information have been received, that it was thought best to present it through the pages of "Amateur Radio."

This method of modulation is of particular interest to the c.w. man who wants to use phone occasionally, for no expensive equipment is needed and most of the parts will be found lying idle in any Ham shack. At the same time it is worthy of permanent installation in a purely phone transmitter, for excellent quality is obtainable with ample percentage of modulation.

CIRCUIT The system gets its name from the fact that the modulator tube and the r.f. tube are in parallel across the modulation choke. It is, in effect, an application of the familiar "cathode follower" system of coupling, and possesses two outstanding advantages. Firstly, because the cathode impedances of the two tubes are almost the same, no matching transformer is needed; all that is required is a good audio choke capable of carrying the sum of the plate currents.

Secondly, because the cathode coupled modulator tube operates with approximately 100 per cent degenerative feedback, distortion in this stage is greatly reduced. Because of this degenerative feedback the grid swing needed on the modulator tube is quite high, and an extra stage of voltage amplification may be needed. This slight disadvantage is more than offset, however, as the cost of a voltage amplifier is well below that of a 25 to 50 watt modulator.

There is a further advantage—the modulator may be used with any of several final stages, simply by plugging it into the keying jack in the cathode circuit.

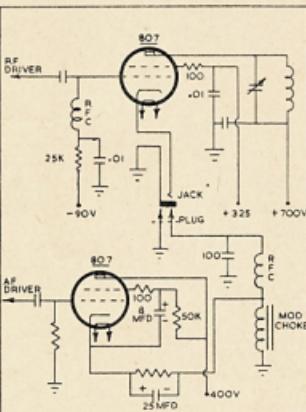
OPERATING DATA For greatest efficiency the r.f. stage should be run at the maximum plate voltage set down for Class C telegraphy. Grid bias, which should be at least three times cut-off for the plate voltage used, may be obtained from batteries, grid-leak, cathode resistor, or any combination of these. The total bias must be by-passed for audio; here the by-pass condenser is 0.01 μ F. mica type.

In deciding the safe plate input for a single tube, take the maximum rating given for plate dissipation for any class of service (usually class-B r.f. amplifier or grid modulated conditions) and multiply by 2.2; permissible plate current is then easily calculated. This input assumes correct adjustment throughout the r.f. final stage; preliminary tuning should always be done at reduced plate voltage.

* 208 John St., Maryborough, Qld.

R.F. excitation power should be at least 5 per cent of the final plate input. The power supply of the r.f. driver must be well filtered; failure to achieve this result will cause grid modulation of the final at the ripple frequency.

Audio power required is 10 per cent of the r.f. final input. Here an 807 is used, as shown in the diagram, but any



triode, tetrode or pentode (or several in parallel) may be used, provided the power output is sufficient. If a tetrode or pentode is used, the 8 μ F. by-pass condenser from screen direct to cathode (NOT earth) must be included.

In tuning it will be found that comparatively heavy antenna loading is needed, or the positive modulation capability of the r.f. stage will not be sufficient when excitation is increased until the tube draws calculated plate current. If the antenna loading is too heavy for a given plate current, the efficiency will suffer with consequent overheating. Antenna coupling should be increased until 100 per cent modulation capability is obtained with normal plate current, but not beyond this point. Grid current will vary according to the type of tube used as r.f. final. Modulation capability may be improved in some cases by reducing grid drive.

PRACTICAL APPLICATION The maximum plate dissipation of the 807 is given as 30 watts, which multiplied by 2.2 gives 66 watts as the permissible plate input; maximum plate voltage for Class-C telegraphy is shown as 750 volts. However, it was decided to keep below these limits, and the following are operating voltages and currents as used here.

R.F. Final—Plate volts 700, plate

current 85 Ma., screen volts 325, control grid volts —175, grid current 2.5 Ma. The bias is made up of 62.5 volts from grid leak, 90 volts from batteries and 22.5 volts from drop across the modulation choke. The screen voltage is a little high, but no overheating occurs.

Modulator—Plate volts 400, plate current 32 Ma., screen volts 225, control grid volts —22.5 (drop across choke).

As used here the cathode resistor for the modulator is not necessary, as the drop across the choke holds the plate current down. Should greater modulator bias be found necessary, a resistor of appropriate value may be inserted as shown to make up the difference between the drop across the choke and the required voltage.

The r.f. choke and by-pass condenser in the "hot" lead from the modulator were found necessary here because quite a lot of r.f. was coming in via this lead.

Should any reader have queries, the Writer will do his best to assist on receipt of a stamped envelope.

A HIGH STABILITY V.F.O.

(Continued from page 3)

If you have taken every care with the building of this unit, you should have no trouble from instability, and after it is adjusted, allow to run for a period against some crystal oscillator of known stability, adding positive or negative co-efficient condensers across C1, C2, C3, if necessary, and finally check the tone of the note compared to the crystal. If break-in keying is preferred, this unit will follow very nicely. Insert the key in the cathode lead of the oscillator, from the bottom of L2 to earth. The final step is to resonate the 6V6G plate tank.

This v.f.o. has been in use on 14 Mc. since November, 1948, and over 200 DX contacts have been made, and except for the period when the oscillator tube was faulty, every report has been T9 and T9X; to sum up, the Writer is more than pleased with the performance of the unit.

Now for a word of warning for newcomers to v.f.o. operation—

1. Make sure you are always in the band.
2. When you have finished a DX QSO, shift your frequency if you have called that station.
3. Never wander over every Kc. of the band if you are not getting out unless you are sure you are being QRMed—it may be conditions.
4. Never put the whole transmitter on the air when "v.f.o.-ing" near the DX station's frequency. Use a separate power supply for the v.f.o., and adjust the v.f.o. to frequency only.

Crystal Controlled Transmitter For 144 Mc.

BY J. COULTER,* VK5JD

This transmitter should find favor with those interested in v.h.f. and who failed to draw an SCR522 from the disposals "lucky dip."

With the exception of the 832, all parts are readily available and reasonably cheap. Quite good results may be had without the 832. Substitute a pair of RL7s and it is still possible to put a very respectable signal on the band.

Very little information regarding the RL7 was available. The circuit values specified are the result of "cut and try." It is possible that further experiment would result in greater efficiency. However, neither tube is working above the recommended plate dissipation rating.

Inspection of the circuit diagram will show that it is quite a straight forward four stage transmitter but careful construction is necessary if optimum results are to be obtained.

The chassis measurements are 17" x 6" x 6". Neither knobs or dials are used—all tuning being done with a screw driver, to ensure a compact layout.

The crystal oscillator is located on the left hand end of the chassis, with

* 49 Farnham Rd., Ashford, South Aus.

both cathode and plate coils mounted below. Whilst the circuit diagram shows the suppressor at a positive potential, this may not be necessary. (This arrangement is the remains of early efforts to take off the sixth harmonic and delete one stage.) Tuning is quite normal and is adequately covered in the Handbook. Crystals used are in the 8 Mc. to 8.2 Mc. region. The plate circuit of the 6AC7 oscillator being tuned to the third harmonic of the crystal.

The RL7 tripler stage follows, being placed as closely as possible to the oscillator plate tank as "lead length," or rather the lack of it, becomes important at these frequencies. No difficulties should be experienced with this stage.

The doubler stage, which also employs the RL7, gave the most trouble. The coupling between stages is most critical. Optimum spacing of grid circuit and previous plate appears to be about $\frac{1}{16}$ " and the grid current will be 6 Ma. The Eddystone r.f. choke is also critical. The actual inductance is 5.32 μ H, and they are readily available and should be used if best performance is to be obtained. Plate tank and condenser are mounted above the chassis but this is mainly for convenience in further experiments. There should be no reason against

mounting below as the plate circuit is at twice the frequency of the grid circuit.

The p.a. is mounted on a vertical shield which, together with the recommended socket, provide adequate isolation between the plate and grid circuits. Should another type of socket be used, it will be necessary to space the socket from the shield. The spacing must allow the tube to protrude through the shield to the level of the tube's internal shield to obtain the same degree of circuit isolation. This appears to be the only constructional precaution.

Having completed the wiring of the transmitter, filament voltage should be applied to all stages and checked. Commencing with the oscillator, apply h.t. and tune stage by stage to the grid of the p.a. With the p.a. grid drawing 3 or more millamps, apply reduced plate and screen voltage to the 832. If the grid current drops, the shielding is insufficient or the stage needs neutralising. The latter is easily accomplished with two pieces of wire, fed through the shield from grids to opposite plates. The wires may be cut or spaced until neutralisation is effected. With the tube

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stabilised, the plate input may be run up to the rated value of the 832 or 822A.

Whilst the transmitter is mainly used for telephony, it has been keyed for c.w., quite satisfactorily. Screen keying of the two RL7s was the method used, with a small battery to bias the 832 (45 volts).

Coupling to the antenna will vary with the type of feed line in use. It is recommended that the coupling be tuned as outlined in "QST," August 1947. This is far superior to the method usually adopted—"poke a piece of flex in until she draws."

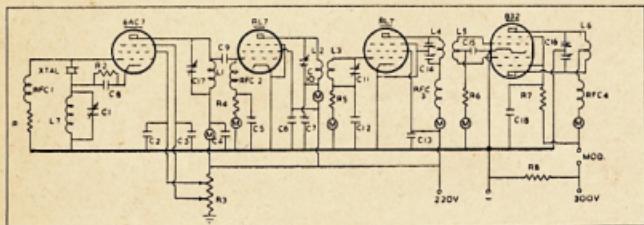
Voltages and currents of the various stages are:-

| | Volts | Ma. |
|------------------|-------|-----|
| Oscillator plate | 220 | 10 |
| Tripler plate | 220 | — |
| Tripler grid | — | 4 |
| Doubler plate | 220 | 24 |
| Doubler grid | — | 6 |
| P.A. plate | 300 | 42 |
| P.A. grid | — | 2.5 |

Note.—RL7 screens are operated at the same potential as the plate. In the final set-up the oscillator and tripler plate currents are not read. They are adjusted to manufacturer's rating and the meter removed. Grid current of the following stage is checked to indicate resonance.

The screen by-pass C18, shown in the diagram, is not always necessary at 144 Mc. A small screen by-pass is built into the 832 to obtain symmetry and minimum of lead inductance, and will be adequate in some cases (e.g. 522 transmitter). The R.C.A. socket UT107 has screen and filament by-passes as an integral part of the socket, or if this socket is not available, an ordinary socket with a by-pass of 500 pF, wired directly across the socket pins with the shortest possible lead length, would be satisfactory.

VK5GF has commissioned a similar transmitter, but is using EF50s in place of the RL7s with equally good results. The coil data given would probably vary slightly with the change of tubes, however.



C1—75 pF. variable.

C2, C3, C4, C5—0.01 uF.

C6, C7—0.0009 uF.

C8—0.001 uF.

C9—50 pF.

C10, C11—25 pF. variable.

C12, C13, C15—500 pF.

C14—25/25 pF. split stator.

C16—9/9 pF. split stator.

C17—40 pF.

C18—See text.

R1—50,000 ohms.

R2—200 ohms.

R3, R8—20,000 ohms V.D.

R4, R6—20,000 pF.

R5—16,000 ohms.

R7—20,000 ohms, 2W.

RFC1, RFC2, RFC3—Four pie, R.C.S.

RFC3, RFC4—Eddystone v.h.f. type.

L1—10 turns 14 g. bare copper, $\frac{1}{2}$ " diam., $1\frac{1}{2}$ " long.

L2, L3—3 turns 14 g. bare copper, $\frac{1}{2}$ " diam., $\frac{3}{8}$ " long.

L4—Hair-pin, 3" long, $1\frac{1}{2}$ " wide.

L5—Hair-pin, 3" long, spacing adjusted to obtain required grid Ma.

L6—4 turns 10 g. copper, $\frac{1}{2}$ " diam., $1\frac{1}{2}$ " long.

L7—11 turns 18 gauge enamel, $\frac{1}{2}$ " diam.

RL7 Socket Connection—

1, 7, 8—Earthing to one side of socket mounting bolt.

2—Plate.

3—Screen by-passed to 4 and 5.

4, 5—Earthing to other mounting bolt.

6—Grid.

9—Filament.

Key-way in line with pin No. 1.

† For further details on RL7 refer to "Amateur Radio," November, 1946, page 8.

The function of such a stub is to present a short-circuit to all even-multiple harmonics of the transmitted frequency, while presenting a high impedance to the fundamental. Thus the stub causes no detuning or power loss, but eliminates the even-multiple harmonics.

The stub may be connected at any point along tuned or untuned transmission lines of either the parallel wire

or the co-axial type. A "T" connector will be necessary for tapping into coaxial lines.

If the transmission line is being used for more than one frequency band, the stub line may be made long enough for the lowest-frequency band used, and a shorting bar may be used to set the stub length to the proper position for each band. Continuous protection from lightning and static charges may be obtained by grounding the shorted end of the stub, and it will not be necessary to remove this ground during operation.—"QST," December, 1948.

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1949 Trans - Tasman Contest

RULES

1. The Contest will commence at 0400 hours G.M.T. on Saturday, 4th June, and continue until 0200 hours G.M.T. on Sunday, 5th June.

2. The Contest will be divided into three sections, namely, Phone, C.W. and Open. The Open Section will be a combination of both Phone and C.W. operation. A contestant may enter for each or all sections provided a separate log is submitted for each section entered.

3. Operation may be on any of the licensed Amateur bands, but transmissions will be in accordance with the Regulations existing in each country.

4. A six number serial group must be exchanged before any points can be claimed. The first three numbers, chosen by the entrant station, shall be retained throughout the Contest. The second three numbers will commence with 001 for the station's first contact, 002 for the second contact and so on.

5. A station may be operated by more than one operator, provided a separate log is entered by each operator.

6. SCORING.—Three points can be claimed for each complete exchange of numbers. The total points will be multiplied by the number of ZL districts worked on each band in the case of VK stations, and the total number of VK districts worked on each band in the case of ZL stations. For the purpose of this contest, the prefixes VK2, VK3, VK4 etc. will constitute districts, except VK5s in Darwin which will not constitute a separate district. ZL prefixes will likewise count as multipliers for VKs.

7. LOGS.—A log showing, in the following order: the Date, Time (G.M.T.), Station Worked, Band Used, Number Sent, Number Received, and Points Claimed and a Summary at the end must be forwarded to Box 2611W, G.P.O., Melbourne, to reach the Contest

Committee not later than the 4th July, 1949. The envelope should be endorsed "Trans-Tasman." The log must be signed by the operator and include a statement that he has complied with the Regulation of his country. The input to the final stage of the transmitter will also be shown.

8. AWARDS.—Attractive Certificates will be awarded in each Section to the outright winners in Australia and New Zealand, and also to the winners of each Section in each District of Australia and New Zealand. The outright winners will not be eligible for the District awards. Further District certificates in each Section may be awarded at the discretion of the Contest Committee.

9. Notwithstanding anything contained in the Rules, the Contest Committee of the W.I.A. shall have the power of final decision in all matters of dispute or breaches of these Rules.

Results of 1949 National Field Day Contest

It is pleasing to note that this year greater interest was shown in this Contest and the comments of those who went out with portable equipment augers well for the 1950 Contest. However, still more interest could be taken, for it is an effective way of trying out that portable gear that may be required for some sudden emergency. Congratulations to the Section winners this year, who in most cases did a good job under somewhat trying conditions.

The C.W. Section winner, VK3UM/3UH, did the trick for the second year in succession and ran up the best score of the Contest. They journeyed to the same location again. One Tree Hill in the Dandenongs and equipment consisted of a Type 3 Mark II. with 15 watts on 7 and 14 Mc. and a 635-6L6 rig with 30 watts on 28 Mc. Unfortunately 28 Mc. was not open and no contacts were made. The Eddystone S640 no doubt, contributed largely to their good score, as well as the long wire and 3 element rotary for 28 Mc. Continents worked were Oceania, North America, Europe and Africa on 7 Mc., and Oceania, Europe and Asia on 14 Mc.

The Phone winner, after a difficult start in a gale, ran up a very good score with only 7 watts into a four stage rig ending in a 1625. This party VK7SK/SJ, used a Phillips' bandswitched receiver and a 120 feet per leg vee beam which helped them to contact the greatest number of stations. They worked Oceania, North America and Asia on 14 Mc.

The Open winner, party VK4HR/RT

(old hands on v.h.f. field days), went properly prepared complete with three stage transmitter using an 832 with 18 watts c.w. and 14 watts phone on 14-28-50 Mc., and a BC459 with 30 watts on 7 Mc. The receivers were a BC348 on 7-14 Mc., 10 valve home-built on 14-28 Mc., and a modified SCR522 on 50 Mc. Antennae consisted of dipoles on 7 and 14 Mc., folded dipole on 28 and two element rotary on 50 Mc. They worked Oceania on 7 Mc.; Oceania, Asia, Africa, and North America on 14 Mc.; and North America on 28 Mc.

There is some talk among the N.F.D. boys of hiring caravans next year! It would appear they may need them to keep up with Tibby. To the other entrants, we say "Thank You" for forwarding the logs.

SCORES

C.W. Section

| | | | | | |
|----------------|---|----|---|-----|------|
| VK3UM/3UH | 2 | 28 | 7 | 269 | Pts. |
| VK4HR/4RT | 3 | 20 | 6 | 224 | " |
| VK2PA/2SH/2ASF | 3 | 21 | 6 | 219 | " |
| VK4JA/4RC/4EL | 2 | 20 | 5 | 178 | " |
| VK3ADB/3YS | 3 | 13 | 4 | 133 | " |

Phone Section

| | | | | | |
|------------|---|----|---|-----|------|
| VK7SK/7SJ | 1 | 53 | 3 | 224 | Pts. |
| VK3ADB/3YS | 3 | 31 | 5 | 185 | " |
| VK3AN/3VC | 3 | 23 | 4 | 157 | " |
| VK3LN/3TF | 2 | 13 | 3 | 103 | " |
| VK4HR/4RT | 3 | 7 | 2 | 77 | " |

Open Section

| | | | | | |
|----------------|---|----|---|-----|------|
| VK4HR/4RT | 4 | 27 | 6 | 251 | Pts. |
| VK2PA/2SH/2ASF | 3 | 27 | 6 | 243 | " |
| VK3ADB/3YS | 3 | 43 | 5 | 218 | " |

Figures above represent in the following order: Bands worked, contacts, continents worked, and total score.

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FEDERAL

DX C.C. NOTES

By the time this appears in print, most of the DX C.C. stickers endorsing additional confirmations of 20 countries, will have been issued to those entitled to them.

PHONE

| | Zone | Countries |
|------------|------|-----------|
| VK3JD (56) | ... | 33 151 |
| VK3BU | ... | 109 |
| VK3HZ (28) | ... | 101 |
| VK3KW (34) | ... | 101 |

G.W.

| | Zone | Countries |
|------------|------|-----------|
| VK3CN (8) | ... | 40 156 |
| VK3VV | ... | 39 127 |
| VK3HZ | ... | 39 127 |
| VK3EK (10) | ... | 39 122 |
| VK3EO (7) | ... | 40 116 |
| VK3EL (54) | ... | 39 116 |
| VK4D (11) | ... | 38 116 |
| VK3EL (53) | ... | 40 112 |
| VK4HR (22) | ... | 38 106 |
| VK3BB (33) | ... | 40 104 |

OPEN

| | Zone | Countries |
|------------|------|-----------|
| VK3DM (5) | ... | 40 100 |
| VK3EZ | ... | 39 123 |
| VK3EX (1) | ... | 125 |
| VK3HG (4) | ... | 38 136 |
| VK4RU (11) | ... | 37 135 |
| VK3E (38) | ... | 39 128 |
| VK3EM | ... | 39 122 |
| VK4HR (6) | ... | 38 120 |
| VK4EW (19) | ... | 39 120 |
| VK4EL (16) | ... | 39 116 |

NEW OPEN MEMBERS

| | | | |
|----|--------|-----|-----|
| 29 | VK2HZ | ... | 103 |
| 30 | VK2VN | ... | 104 |
| 31 | VK3OP | ... | 108 |
| 32 | VK2HAM | ... | 100 |

COUNTRIES LIST

Until further notice, the only official prefixes used in Germany are:

D1A instead of D2 (British Zone)

D1A instead of D4 (American Zone)

D1E instead of D6 (French Zone)

W1 BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WL—Sundays, 1100 hours EST, 7196 Kc. and 2000 hours EST, 50.4 Mc. No frequency checks available from VK2WL. Intra-State working frequency, 7175 Kc.

VK3WL—Sundays, 1130 hours EST 7196 Kc. Individual frequency checks of Amateur Stations given when VK3WL is on the air.

VK4WL—Sundays, 0930 hours EST simultaneously on 3750 Kc., 7190 Kc., 14342 Kc., 52.4 Mc. and 144.138 Mc. Frequency checks are given two nightly weekly, and the time of transmission during Sunday broadcasts. 7010 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 WL query service to 4W.

VK5WL—Sundays, 1000 hours SAST on 7196 Kc. Frequency checks are given by VK5WL on Friday evenings on the 7 and 14 Mc. bands.

VK6WL—1st 2 p.m. Sun. 7930 a.m. W.A.S.T between 7000 Kc. and 7200 Kc. No frequency checks available.

VK7WL—Second and Fourth Sundays at 0930 hours EST on 7174 Kc. No frequency checks available.

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Secretary.—W. L. Stevens, VK4TB, Box 638J, G.P.O., Brisbane.

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Secretary.—W. E. Coxon, VK5AG, 7 Howard St., Perth.

Meeting Place.—Post Office House, Cnr. St. George's Ter. and King St., Perth.

Meeting Night.—Watch the Monthly Bulletin.

Divisional Sub-Editor.—VK6WL, Mr. D. Couch, Mary Street, Watermans Bay, W. Australia.

TASMANIA

Secretary.—J. Brown, VK7BJ, 12 Thirza St., New Town, Telephone: W 1328.

Meeting Night.—First Wednesday of each month at the Photographic Society's Rooms, 163 Liverpool St., Hobart.

Divisional Sub-Editor.—Capt. E. J. Cruise, VK7EJ, Anglesea Barracks, Hobart.

Northern Correspondent.—C. P. Wright, VK7LZ, 3 Knight St., Launceston.

SILENT KEY

VK2GR

During February New South Wales lost one of its old timers in the passing of Alex Robinson VK2GR. Alex had been sick for many months, but despite this fact, was a very active 20 metre phone man until his untimely end. He will be best remembered for his work in the field of radio for beginners in the Western Suburbs of Sydney and many Amateurs today owe their tickets to his efforts. A member of the Gladysville Radio Club, his main diversion was to contact his G friends and bring back memories of his youth in England.

Things are still very confused regarding officially licensed stations and as far as is known DA and DR calls are being used by ex-D stations and pictures are promised to name the other DL pictures at a later date to these ex-D Hams. Substitute YK for ARI prefix for Syria.

SWISS CONVENTION

The following are extracts from a letter from Mr. J. Dobson, of the P.M.G.'s Department, who is the Australian representative on the Frequency Board at present sitting at Geneva, Switzerland:—"I attended the 20th Anniversary of the Swiss Section of the I.R.U. which was held at Pratteln on Saturday January 25. At the invitation of the International Relations Officer of the Union Swiss des Amateurs (U.S.R.A.), I represented both the P.M.G.'s Department and the W.I.A. as a member of the original committee. It is of interest to mention that five members were represented at the meeting, and after dinner, at the Hotel de l'Europe, 'VK' was called on for a talk on Amateurs in Australia, which was very well received and great interest was shown in the W.I.A.'s history and development. I was asked to convey the best wishes of the U.S.R.A. to the President and members of the W.I.A."

TRANS-TASMAN CONTEST

Elsewhere in this issue appears the rules of the 1949 Trans-Tasman Contest, a contest held to promote

more closer friendship with our near neighbours, the Z.L.s. This Contest has been put back to the first week in April, so as to coincide more closely on other International Contests. It is only a short contest and does not require endurance or a constitution of iron! We enjoin all VKs that take an interest in Contests to enter, and make it a huge success this year for yourselves and your brother Amateurs in Z.L.

FEDERAL CONVENTION

The Annual Federal Convention is being held in the Institute Rooms at 191 Queen Street, Melbourne, commencing at 1400 hours Good Friday, 15th April and concluding at midday Easter Monday, 18th April (one hour). All local Amateurs and Inter-state visitors are cordially invited to attend some of the sessions during this period, as they will have an opportunity to hear a few of the problems involved in the administration of our Institute.

W.A.S. RULES

We regret that we are at present unable to publish the Rules of the W.A.S. Award due to delays occasioned within the Divisions in preparing for the Federal Convention. The rules, as approved by Federal Council, will be published as soon as possible. Credit will be strictly given in order of the date of working W.A.S., so don't feel you will be not given due recognition of your achievements.

F.I.A.T.S. CHARTS

As a result of a motion put by Federal Council to the Divisions, it has been decided to confine the publication of these charts. How long they continue to be of use to you as individuals—please let your Federal Council know your views and suggested improvements. Dr. Green would be deeply appreciative to receive your comments also, so please send them in.

AMATEUR CALL SIGNS

The following list will be the first supplementary list to the new Call Book when it is available December and January amendment lists will be included in the new publication, which should be sent to you with the blind interleaves. The P.M.G. are to be complimented on making this facility available to enable members to keep their books up-to-date.

New Issues—

VK1ADS—R. W. Sterrett, National Antarctic Expedition, Macquarie Island.

1FE—L. R. BUTTON, National Antarctic Expedition, Heard Island.

1VU—R. G. F. Gatt, National Antarctic Expedition, Heard Island.

VKE2AFTD—J. D. Fisher, 156 Albany Rd., Petersham.

2AJR—J. C. Turner, 26 Roberts St., Jamann.

2AJT—F. F. Pulling, Post Office, Coffs Harbour.

2AKJ—J. S. Kemp, 34 Irving Cres., Ryde.

2AMA—O. L. Weiser, 31a Salisbury Rd., Kensington.

2AMJ—O. L. Weiser, L. Jira, 87 Second Ave., South Lidcombe.

2ARV—C. H. Archbold, Chittaway Point, via Wyong.

2ASR—S. W. Graves, 109 Clovelly Rd., Randwick.

2ATM—T. W. Marks, 11 Woods Street, Manly.

2AWB—W. J. M. Ballie, 85 Harrow Rd., Belvoir.

2AWF—W. F. Long, 26 Parkham St., Moore Park.

2AZV—D. Andrews, 61 Cox St., North Ryde.

2AVG—Postbox No. VKE2YC.

VKE3ACH—W. P. Smyth, 100 Bell St., Preston.

SAC—R. C. Fischer, Ettamoga Ave., Mildura.

SAND—A. M. Doble, 206 Porth Rd., Hughesdale.

SAVN—T. F. Webb, 2 Eliza St., Black Rock.

SAWC—W. J. Currie, 12 Stevedore St., Williamstown.

3MG—K. W. Jane, 20 Coolangatta Ave., East Liverpool.

VKA1BP—A. L. Berry-Porter, Grant St., Atherton.

4FP—F. Pickles, 61 Liverpool St., Clayfield.

4GA—C. E. Goodall, Cook St., Atherton.

4JH—J. F. Hanran, 28 Macrossan St., South Townsville.

4NF—N. F. Verkerken, c/o Mrs. Sandall, River Parkfield.

4PO—P. R. Oliveri, Jafoon, via Iannifail.

VKE5ER—E. J. Blyle, 45 Edward St., Brighton.

5IP—L. J. Piese, 55 Halsbury Ave., Kingswood, Unley.

5LH—L. J. Strachan, Hospital Rd., Port Augusta.

5RD—R. D. Robertson, 21 North St., Frewville.

5RY—R. Burgess, c/o. Salisbury Hotel, Salisbury.

VKE6KU—R. H. Campbell, 16 Doonan Rd., Claremont.

VK7KA—K. E. Millin, Cr. Minnalo Ave. and Lockner St., West Hobart.

VKE9RO—R. M. Ellison, Papuan Missionary School, Bautama, via Port Moresby, P.T.

Alterations—

VKE2ABP—J. H. Howes, 61 Outley Park Ave., Outley.

2ABV—L. Scotland, 28 Fiftree Ave., Randwick.

2ACM—M. Cowan, 35 Dillon St., Paddington.

2ADB—C. Caldwell, 1 Fletcher St., Strathfield.

2ADG—J. Dark, 109 Arbutus St., Canterbury.

2ADJ—J. B. Williams, 82 Auckland St., Bega.

2ADK—E. G. Pugh, 309 Morrison Rd., Ryde.

2AHL—K. L. Finney, Flat 6, "Connell Court," Connell's Point Rd., Sh. Hurstville.

2AMA—O. L. Weiser, 31a Salisbury Rd., Kensington.

2AMZ—H. S. Young, Kardella Cres., Narwee.

2AOF—H. C. Freeman, 5 Canterbury St., Hurstville Park.

2AWW—A. W. White, 41 Cahill St., Beverley Hills.

2EA—L. Martin, Lower Kangaroo Creek, via South Grafton.

2LC—N. Glasscock, 95 Beaconsfield Rd., Chatswood.

2OU—S. Littlejohn, 3 Emmerick St., Leichhardt.

2QL—F. T. Hine, 18 Bridge Rd., Homebush.

2QM—S. C. Bradburn, Cr. Jamieson & Granger Ave., North Curl Curl.

2RO—J. G. Gill, 107 Queen St., Chullora.

2SA—W. F. Salmon, 106 Flora St., Kirrawee.

2ST—W. C. Hall, Oriental Hotel, Cook's Hill.

2TG—A. T. Goldie, Public School, Mummulgum, via Casino.

2UT—J. T. Todd, Alan St., Rydalmore.

2VN—M. J. Morris, 20 Kardina Rd., Clifton Gardens, Mosman.

VKE3AAW—A. W. H. Wright, Air and Ground Radio School, H.A.A.F., Ballarat.

3AC—H. G. Chandler, 6 Carrington St., Pascoe Vale.

3ADR—R. Roy, 23 Pine Ave., Elwood.

3AFL—F. C. Lambert, 281 Main St., Bairnsdale.

3AFW—R. C. Treson, 36 Yaldwin St., Kyneton.

3AKC—G. J. Griffiths, 56 Holmes Rd., Moonee Ponds.

3AMK—H. W. Hannam, "Amfield," Berrioborough Ave., Balwyn.

3ANL—E. L. Blackmore, 240 Auburn Road, Auburn.

3ARY—J. R. Birks, 706 Main St., Ballarat.

3AWM—W. H. Moffatt, 2 Maroona St., East Melbourne.

3CW—K. J. Millbourne, 5a Melville St., Hawthorn.

3DX—D. Newton, O'Shaunessey St., Nunawading.

3DP—J. M. Farmer, Deep Lee, via Stawell.

3DW—D. W. Tacey, c/o. Woodend Theatre, Woodend.

3IV—E. K. Ridgway, 44 Inkerman St., Ballarat.

3JX—J. S. Sydow, 23 Fosbery Ave., Caulfield North.

3KK—E. T. J. Kerby, 17 Bayview Ave., Auburn.

3KQ—G. T. Benwell, 33 Draper St., Ormond.

3OE—A. O. Oxley, 392 Riverside Rd., Surrey Hills.

3PB—P. C. Bennett, 58 Shady Grove, Nunawading.

3QK—E. H. Jenkins, Churchill Island, via Newhaven.

3QR—B. R. White, c/o. Rev. White, "Paralls," Esplanade, Dromana.

3PW—H. P. Webber, 37 Lucerne Cres., Alphington.

3RG—J. H. Jones, 36 Harnell St., Box Hill.

3ST—J. L. Coghlan, 438 Dorcas St., South Melbourne.

3WP—P. V. Inglis, Jeffrey St., Bentleigh.

3WS—P. G. Scown, 9 Kinane St., Brighton Beach.

3XF—L. R. McIntyre, 67 Chetwynd St., West Melbourne.

3YG—J. A. Smith, 10 Hornby St., East Brighton.

3YN—L. R. Taylor, c/o. J. Stedlin, The Boltevar, Maribyrnong.

3ZY—W. F. Borrest, 3 Curzon St., Ivanhoe.

VKE4AI—A. F. Kearney, 602 Kent St., Maryborough.

4CP—G. A. Calriss, Lansdowne Ter., Newmarket, Brighton.

4FL—J. F. Bell, King St., Box 33, Nth. Mackay.

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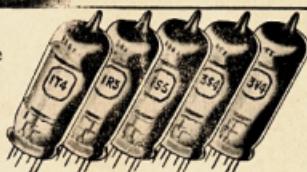
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time to time with a phone signal on 40. Frank Fisher, a new member to the gang here, recently received his ticket; congratulations Frank, hope to hear you soon. 3AGF has closed down and dismantled his gear. Tom hopes to leave the district the rear parture will be heading for New Guinea or parts unknown there. 3BGZ has had the harvest and guess he is kept busy trying to save the crop. 3GZ keeps the seeds with 3WI each week-end and also the mid-week ones. 3AUG is usually gathering bits and pieces together and will have a siren on 30 Mc. band in the near future. His son is working quite well on 28 Mc. Ned will be the 50 Mc. man for this area when he gets settled down.

CENTRAL WESTERN ZONE

The zone's thanks go to 3XU for his able representation at the recent State Convention in Melbourne, and the detailed report forwarded to the Secretary. 3AKH has all the parts pieced assembled for the new 300 w.s. modulator. SARM was caught napping at the last gone hook-up and turned up four hours late, never mind Bob you will be OK next time. Keith has the phone ringing now, he has been working hard and has been fronted out, all should be well. 3EPF has turned away to fishing, what's the DX per cast and how many get away? Ted also has laid the old kerosene heater aside, so we will miss the background winter. Old George at Ararat has much more time on his hands these days and 3GN is heard at unusual hours.

3IQ (that breaker of skeds) has at last managed to put a 50 Mc. signal over the hill into Maryborough and is now looking for bigger game. While it is so small, and we have carried him along in his name in the State Committee. What Willis wants to know is who powdered the shack while he was away? It's sure to catch up with you sometime Bill. Allan decided Callawalla had been silent long enough, so after chasing rabbits out of the rig, got back into gear on 10 Mc. See you next week on 3ELL SECOND SUNDAY in month, 7120 Kc. At 10 a.m., control station 3WV.

EASTERN ZONE

Eastern Zone business was conducted after the first round, approximately 6.30 p.m. This will replace the old time of 2100 hours. The hook-up will commence at 8 p.m. as usual.

3QZ and 3PR have been busy arranging the Eastern Zone Portable Contest. Ron went on 20 for the first time in months and worked 3IV. He has now got his 300 w.s. modulator and is rig to operate off a.c., ready for his projected move from the hills of Trafalgar to somewhere in the suburbs. 3ANC of Trafalgar was heard on 40 trying out a "Clapp" oscillator as v.t.o. We were pleased to hear him on hook-up on 10 Mc. in early March. Norm 3BH has a new job up and a new rig. The rig works well on 80 and 10. Bert was running 77 watts when he was in the last hook-up.

Our worthy President reported receiving a phone call from "Snowy" 3ME recently. He is located at Coole, and unfortunately has been bringing the farm up to scratch to come on the air. Don forgot the Sunday night hook-up on 3650 Kc. when you do come on, "Snowy". 3CI lost another tranny on the 10th February; rain again? Syd expects a visit from 3AWK on Saturday night. On the 12th, 3HU from 3HBB joined him and is checking up on a modulation. 3AKH's new modulators are working well. 3AEV has been steadily improving his phone; 3SS has mounted the L.P.A. on the receiver he has been building for the last 12 months. It's coming on! Keith, when it is good when it is finished; when it works! 67 WYR are now operating on 10 Mc. and have moved to VK6. Hope you enjoyed your stay in Victoria, Frank. 3AUC has returned from a long holiday in Tasmania. 3AUC found his roof leaking during recent heavy rains; hope there was no damage. Eric, 3EVU, have their beam tower finished at last, and can see some bright prospects from inside. They recently had a visit from 3BM.

SOUTH WESTERN ZONE

The following members were seen as the State Convention held in Melbourne: VK5 3BH, 3BE, 3JA, 3HF, 3SE, and self 3U7T. Your sorbie had his eyes opened to find that Jack arrived about two hours late on the Friday night, but was up at 4.30 a.m. next morning to pick up 3BE and 3BI. The other members were seen as follows: 3AU, 3BZ, 3CZ, 3DZ, 3EJ, 3FZ, 3GZ, 3HJ, 3HZ, 3IY, 3JZ, 3KZ, 3LZ, 3MZ, 3NZ, 3PZ, 3QZ, 3RZ, 3SZ, 3TZ, 3UZ, 3VZ, 3WZ, 3XZ, 3YZ, 3ZBZ, and self 3U7T. They made the grade at 11 a.m.

3ZU is on three weeks' leave and has a 108 re-vamped for 6 volt tubes. 3DE is holidaying in VK5 re-land, while's the YI like over there Andy. Heard Kevin working some DX on 20 on other night, also Gordon working in the DX contest at 20 metres at 3ZV. G.W. chap tangled in the DX contest again, the W chap put him OK. 3HW called his head off one night on 20 just a few Kc. higher than 3HF with no success, while Harry was just working them one after the other, that's veve beams for you John.

Heard the other day that 3VA and 3GR are going on holidays within next few weeks. 3BI, at time of writing this, is in bed with eye trouble, let's hope Bert you will be up soon. 3BU was on 40 with a rat, and 3CZ, 3DZ, 3EJ, 3FZ, 3GZ, 3HJ, 3HZ, 3IY, 3JZ, 3KZ, 3LZ, 3MZ, 3NZ, 3PZ, 3QZ, 3RZ, 3SZ, 3TZ, 3UZ, 3VZ, 3WZ, 3XZ, 3YZ, 3ZBZ, and self 3U7T. 3YE is putting out fine signal with his little rig. 3YE has new antenna up for 20, but came on 40 other night to meet the boys on the "gentlemen's" band once more. 3PS still busy at shop and 3EQ has a fly at 20 with good results, working G on phone.

3JA finds time to work a little on 80, with 3HG on same band, when not walking the floor with new junior op. Have not heard 3II on for some time now, but 3AGD (his brother-in-law) puts in good signal here on 40, so what about getting Leigh to come out of his shell and look for us on some night. Please remember chaps, next some hook-up is on the 3rd April at 10 a.m. 15750 Kc. so roll up as we still warn more in our hook-ups, don't let our zone down fellows.

Getting Amateur Radio Club - There was a good attendance at a Lecture on Amateur Radio Club when 3ALG gave a lecture on "Receivers I Have Built". Fred drew circuit of these receivers on the black-board and explained their advantages and disadvantages. He finished with a practical demonstration of a 6-tube receiver built by the "Amateur Junior" receiver. At the following meeting members welcomed two visitors, namely, John Watson VKEARM, who operates mobile marine on the S.S. Kooyalyn, and Alan Chenal. 3AJP explained the construction of his d.t. loop. 3AKE outlined his BI-15 tubes high power transmitter which he had adapted for use on 144 Mc. On Sunday 6th March, members of the club set out to find the hidden transmitter. The first to find it was 3AKE and 3AHK, who were together.

NORTH WESTERN ZONE

3TH is building a new 90 foot stick to replace the 80 footer that crashed; he is putting steps up it. 3ELL has been at Sea Lake and putting out the usual 3.5 Mc. sig. 3HR has re-located his shack and is heard occasionally on our hook-ups. Charlie is worried that the alternator output drops 10 volts under load. 3OA has w.s. 4 element rotary on 6 metres and KS counter working OK. Ian is now rebuilding a 6 metre transmitter. He is using a element c.a. beam but no good without pruning so built the w.s. job using ordinary conduit with the seams soldered; center fed with 50 ohm co-ax, cut and spliced as per A.R.R.L. Handbook, and worked right through with a point ground on top pole. Ian attended the State Convention and last general meeting while on holidays caravanning at Busselton.

3AWK puts out nice quality phone using TA12D, modulated by 4 1265s in p.p.p., all run off 240 volt d.c. supplies. When he moves into his permanent home in a few weeks he will erect a decent antenna. 3AIIY of Sea Lake has a nice dipole antenna with low power. See you in our hook-ups more often Ian! 3ACE and 3CH, who are well known on 40 metres phone, also attended the State Convention making a total of four N.W. Zone members present. It takes a lot of money to buy a lot of petrol to bring fellows 100 miles to a meeting. 3CH has made tentative enquiries about v.t.o. design. I could fancy a 6 metre rotatory atop Roy's 80 foot tower!

3AJ has advertised his rig for sale. We don't know yet whether Johnson has given notice on Ham Radio or is merely re-building. 3BM has had a busy month's holiday, attending State Convention, Avenel Convention, General Meeting, Mornington Sub-Branche meeting, and V.H.F. Group meeting, also Ellinjaa Park, and is going home with further ideas for x. 3BL has replaced three element series phased array with four element w.s. rotary, and 300 ohm ribbon (which has blown to bits) with 45 ohm co-ax.

QUEENSLAND

At the seventeenth Annual Meeting of the Queensland Division held on 23rd February, 1949, the election of office-bearers for the coming year was completed with the following results:

President: Mr. A. Wals (4AW); **Vice-Presidents:** Messrs. V. Jeffs (4PV) and P. Kelly (4KB); **Secretary:** Mr. W. L. Stevens (4TB); **Treasurer:** Mr. J. Greenham (4ACW); **Trans. Manager:** Mr. D. J. Shannon (4SN); **QSL Officers:** Messrs. R. Campbell (4RC) and E. Lake (4EL); **Stations Manager:** Mr. F. M. Nolan (4PN); **Country Representative:** Mr. H. H. Shannons (4SN); **Students' Representative:** Mr. Ellinjaa; **Librarian:** Mr. W. Faher (4WF).

A ballot was taken on the advisability of raising Membership Fees to 30/- per annum resulted in 48 for and 23 for Yes.

Membership at the end of last year showed 71 country and 78 city. In addition to these trans-

mitting members, the Division has 52 Associates in the city and 13 in the country. During the past year 65 food parcels were sent to Britain, and all one reached its destination safely.

Students will be pleased to hear that 4WI will, in line with the other stations, increase power, medium and fast speeds on a frequency of 5504 Kc. between the hours of 1930 and 2000 on Tuesdays.

Plans for the setting up of an Emergency Network are well in hand, and all members interested should contact 4FB immediately, giving details of portable equipment available. You are invited to attend the 4WI broadcasts on 7100 Kc. at 14.345 Kc. on Sunday mornings for further details. Members who are holding Library Books are asked to remember that other members would like to read those manuscripts. So please, fellows, play the game!

Speaking of bands, have all that gear been of trying to make out that VK9 is now STATE for W.A.S. on 50 Mc. Since we have New Guinea as a State of Australia? If we want to make "all VK" the requirement for W.A.S. why not use in VK1.

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so good with the elusive crayfish at Cape Jaffa, but apparently Ross still retains his sense of humour, because as they passed a couple of the big fishing boats he leant over the side of the cockleshell boat he was in and said in a very high pitched voice, "We're really very sorry, this is the way to Australia, yes?" To the evident amusement of all the crew and fishermen.

The increase in the annual subscription was received very well, everyone apparently realising that the increase was justified. It was expected that one member would leave it as it was, and one was appointed (good old Leith), and the Treasurer in an exclusive interview after the meeting said that the members had all rallied around to pay their subscriptions real early and they will all receive a good mark stamp from Gordon. I have not paid yet as I expect that I will receive the "stick" (see sidebar).

The two representatives from VK5 to the Federal Convention are Eddie Barber (5MD) and Halbert Austin (GAW). I am not too sure of that Halbert, but he could be right, nevertheless, he is not too bad, and the experience at the Convention, and can be relied upon to keep the best State in the Commonwealth well to the front!! There is no truth in the rumour that they won't take me on account of there being no frisks in Melbourne. They call me a "freak" there.

SAM is looking younger and younger every day, in fact he is getting so young that he specialises in youngsters' complaints. You said it, mumps. Sorry Fred, but it was too good to miss. SJA has his workbooks working very well on 10 m.c.w. and 40 m.c.w. The small three element wide spaced and motor driven. SJA has a crystal controlled transmitter on 6 and 2. EMS is still not satisfied with his beam but the rest must be OK as he manages to work the Gs on phone. He is using an 813 at 50-60 watts. 5KU is working on 7 Mc. c.w. mainly, but has had a very poor run during the last month. 5FD will be on a.p.c. before these notes are printed. He is building a "push" transmitter.

5CH has been busy on the bushfire frequency coupled with a business trip to Adelaide. 5TW has been on 10 metre c.w. and is also experimenting with fixed beam. 5CH still finds that the state of the art in the 10 m.c.w. band is not up to par. Ham radio although he is making slow progress with his v.h.f. gear, 5FX now holds the undisturbed earshot championhip of VK5. I clocked him at two and a quarter hours with a V.R.E. the other night and blown my down to 2 hours and 45 mins. I think the next night he did it again! I know he is still going. 5KO is building a new beam. Appears that he is sick of aiming the beam at the moon since the last storm bent it up. Dame Rumour reports that 5JE has had it and sold all his gear. He has also resigned from the W.L.A., so it seems only too likely.

One was asked to get QSLs to be like 5QP. Ken is so ignorant he left his home at the moment and cannot use the mike (Doctor's orders) but boy those two sunnies of his, Rosemary and Beryl, you know. Anyway, lay off gang, Ken can still use an Owen gun. Leith Cotton (5LA) made up a new beam, had a doublet, A.R. 1000, but ran out of his proverbial "Fancy" trying to fit said microphone into place, and believe me he has a remarkable stock of the language of France.

Who was the Ham in an Eastern suburb who spent the Saturday afternoon digging in the garden, and strangely enough picked up quite a number of sixpences? Well, it turned out the son only to whom that he had given in his pants pocket had been picking up the same sixpences all the afternoon. You Beast! In closing might I ask who was the Ham who was locked out of the Church just recently at his own wedding and why? Also where were the thoughts of the organist when he woke up in the a.m. and found that the cold world instead of being a blushing bridegroom. A leather belt and a couple of rabbits will be awarded to the first correct answer received between now and 1952.

WESTERN AUSTRALIA

The March meeting was held on the 15th. It was a General Meeting, followed immediately by the Annual Meeting.

The long awaited Prediction Charts appearing in "Amateur Radio" were subject to discussion. Because of the late arrival in VK6 of the magazine, the charts were of little or no benefit as forecasts of conditions that could be expected on the bands. Nevertheless, the members had a go at them, along with the prediction charts and found that the charts had been particularly accurate. Steps are being taken in an endeavour to have the magazine delivered earlier.

6WT explained the late arrival of the December issue of the magazine and 6GM, our Federal Councillor, will try for a more equitable distribution of the magazine when he represents us at the Easter Convention.

Our results for 1949 were announced. They are as follows—**EDO, 5KW, 5AG, 5WH, 5GM, 6MS, 6MY, 6JW and 6RU.**

6CP told us that there was a certain amount of dissatisfaction among our country members, and it has been decided to circulate all members in VK6 to gather suggestions which can help country Hams to derive more benefit from the W.L.A.

PERSONALITIES

5ZOR is on his way back to VK land. We'll be looking forward to more regular QSOs now Len. CETAH gladdened the hearts of a host of VK6ers on a recent Sunday. Ida and Larry worked about a dozen of us. Ida was the other, who when we were at a peak on 28 Mc. Among those looking for her QSL card are: 6NL, 6MB, 6AP, 6LM, 6LZ, 6KU, 6HS, 6FT, 6JW, and 6WT, and they're coming by airmail! 6NL and 6LM both hooked HK5MO the following day. Lionel was particularly proud of his effort with only 50 watts.

6DPA was having difficulty in checking on his rig. Maurie was surprised at some of the figures and now he is finding it much easier to contact that elusive DX. 6FA has been in contact with the new expeditions now on Heard Island. He is expecting a QSL from VK3ACD any day now. 6RS and 6GD, two members of the "Carlisle Crew" have gone to the States. We are going to hear you two boys on 7 Mc. again?

6TK came back from a holiday to Geraldton. Jack had a wonderful time up there, but he has forgotten how to switch his own rig on. Hasn't been on since he came back. 6ZQ says we may hear him around the bands again soon. Hope he is fair dinkum! 6OC has been getting in touch on 14 Mc. phone. Good show. But, we will be looking for you, 6CK has a nice sign on 7 Mc. 7Cim is building a rotary turret receiver and that has been taking up most of his spare time. 6MX putting out a really solid c.w. signal on 14 Mc. 6LZ is working 14 Mc. Milo is getting a good share of the DX. Thought he would have had a go at the 1949 R.E.R.U. Contest.

6JB has been too quiet too long. What's happening there Alan? 6DD is wearing a frown since he learned that 6FW will be living just across the river. Someone was talking about canoes, axes, and chopping down trees! 6ND has been a rebuilding project, well, he hasn't, but he is planning to do so. Mc. antenna again Neville! 6NC now has a nice phone signal on the air. The only trouble Neil, is that we don't hear enough of it. Did you get the use of 6DJ's modulator? 6HL not heard quite so frequently these days. They say there's a W.A.C. for Worked All Claremont. Is that right Harry?

TASMANIA

The transfer of Mr. Terry Connor (7CT) to Huonville has brought a fresh interest and franker participation in Institute affairs has made it necessary for him to give up writing these notes in favour of TEJ, so before you go Terry, the writer would like to take this opportunity to thank you on behalf of fellow members for all you have done, and wish you good luck in your new job.

The March meeting was, as you know, our Annual General Meeting and election of officers. Quite a lot of business was transacted and the profile of the club is improving. The future looks bright. It will be interesting to see how things shape in the future—not that there were any complaints with the old gang. The dinner that followed the Annual General Meeting was pronounced a huge success by all who attended—someone said that the lemonade was excellent and that the barrels were empty when we pulled the big switch.

A field day with the usual a.t.f. hunt was held on Sunday the 6th March. The transmitter was in the hands of 7SK and 7SJ and they chose a spot just outside Kingston. Crosby Walsh 7CW was first home with Dave Hillyards 7DH and Barney Watson filling the minor placings. By the way Syd, how did you make the antenna and what's the secret when there wasn't any water for miles around?

7GJ and 7AF are busy building beams and by the time these notes are in print they should be in operation. 7AJ built a three element close spaced array but it is believed a big wind blew it down. 7LE has been heard on 7 Mc. conducting experiments with low power single side band transmission, nice work. 7E has been heard on 14 Mc. and 20 Mc. for A.R. 1. Guess I must have the most tolerant XYL ever. I have just changed QTH and I had a long wire up before I had the carpets down—still there is a lot of gardening looming up.

NORTHERN ZONE

There has been only limited activity in this zone since the New Year and although the routine skeds have been kept by the 144 Mc. enthusiasts and intermittent operating by the DX boys nothing spectacular has happened.

On 28 Mc. the European break-throughs, predicted by the ionospherics, did not eventuate in Tasmania, however during the late afternoon of 27th February, several African stations broke through intermittently at excellent strengths as did old Europeans. W.A.C. was heard on this band from 13 a.m. until evening. It is fairly unusual for us to hear such a variety of DX on this band.

The Annual Meeting and Dinner of the W.L.A. was held in Hobart over the March long week-end. The cars were loaned by members from the town. On the Sunday a State wide field day was held, as only one of the northern cars was far enough away to procure d.f. gear the remaining car opened their envelope at the starting point and then followed 7LJ's car. Fortunately Lou had the direction correct and no petrol was wasted. Lou with his usual enthusiasm and good humour, Lou made a wrong move and we found a hotel on the corner of the road and we were able to wait for him. Anyway we are not blaming Lou as it is doubtful if we could have got past anyway.

On the Sunday evening various shacks were visited and little time was wasted in sleeping, in fact 7RK and 7DS grabbed forty winks on the way home.

On behalf of those making the trip, I would like to thank the various Hobart members for their hospitality.

FIFTY AND UP

NEW SOUTH WALES—Compiled by VK2NP

We have much pleasure in announcing the winners and participants of the recent V.H.F. Contest conducted by the N.S.W. Division V.H.F. Section:

| All Band— | |
|-----------|--------|
| 1st | VK2WJ |
| 2nd | VK2VW |
| 3rd | VK2ABZ |
| 50 Mc.— | |
| 1st | VK3LY |
| 2nd | VK3WJ |
| 3rd | VK3ADT |
| 4th | VK3SRU |
| 144 Mc.— | |
| 1st | VK2WJ |
| 2nd | VK2ABZ |
| 3rd | VK2VW |
| 285 Mc.— | |
| 1st | VK3WJ |
| 2nd | VK2ABZ |

Others who participated were: VK2, 2ADT, 2HZ, 2BZ, 2DW, 2ABC, 2PN, 2AJA, 2MK, 2LZ.

We congratulate the winners of each Section and would like to spend a few words on the performance of VK2 who made such a collateral score due to the advantage of working three bands, thereby taking full advantage of the multiplier.

The Contest was very successful and achieved the object for which it was conducted and that is to stimulate interest in v.h.f. bands. However one disappointing feature was noticeable and that was the lack of interest shown by those who might have been attracted to v.h.f. by the fact of the Contest. However those who participated enjoyed every minute as was evidenced by the remarks and comments forwarded to the Contest Committee on request. From these we can see that many were able to gather many useful suggestions—the general running of such another during summer of 1949.

The general opinion seems to be that P.E. should sponsor something on similar lines and to be conducted as an all VK affair which could also include ZLs who were so interested in our activity and who helped the N.S.W. Section to follow gain many more points. P.E. should decide favourably on this subject, the N.S.W. Section would be most pleased, I am sure, to let them have a copy of their Rules and Regulations.

Talking of Contests, the N.S.W. Section are holding another V.H.F. Contest during May, from 31st Inst. to 1st June on 144 Mc. Points were as follows up to 100 miles 10 points, up to 1000 miles 6 points, over 1000 miles 12 points. Full rules will be available in April monthly Bulletin.

A field day was conducted on 27th February by members of the Gladysville Radio Club on 285 and 144 Mc., around some of the high spots of Sydney.

Portable stations were at Mangrove Mountain, Mt. Kurrajong and Kurrajong and 2AMP, 2MH and Mr. Attwood operated independently from Bringelly, 20 miles west of Sydney. The Gladswill Club are also active with stations on 50, 75, 100, 144, 200, 250 Mc. and a competition in direction finding of portable stations will be carried out. The enthusiasm of this little club is to be admired and could be very well followed by other such societies around Sydney who apparently had old business contacts once a week and held QSL bourses for the benefit of their members. How about it Kingford, N.S.W. Experimental Society, and Waverley? Perhaps we are a little harsh because we have it on authority that there is another very active club at Hurstville who do enter the general air band contests and also have some field days recently on 50 and 144 Mc. and also do have an enthusiastic management committee. Nice idea for Gladswill and Hurstville to get together and arrange a combined v.h.f. field day before the winter sets in!

The last meeting of the N.S.W. V.H.F. Section was held on 11th March at Science House and Mr. Attwood gave a most interesting talk on "Methods of Coupling Beam Antennae to Feed Lines to Cater for Full 360 Degrees Rotation." Mr. Bird covered his subject thoroughly and applied involved mathematics which proved very difficult to follow on the blackboard.

Mr. Bird was thanked for his effort and promised to publish this talk in a "Future Amateur Radio." The next meeting of the V.H.F. Section in May will include a lecture to be arranged and the annual election of officers.

At this stage we would welcome 2PB and 2LQ to v.h.f. and judging by their conversation on the air that they should be at home almost immediately. I am sure many bands are using 80's in final and converters for receiving.

Country activity on 50 Mc. is increasing and 2GU, 2TA, 2TC, 2PA, 2RU, 2ADT, 2BZ, 2RQ, 2AHA are contacted regularly and we believe 2ACP will shortly be operating from Katoomba on low power.

The weekly broadcast of news and activities to members and enthusiastic non-members of the W.I.L.A. has, up till recently, been transmitted by 2NP but this station, for domestic reasons, has had to relinquish this important job. 2LY Katoomba kindly volunteered to carry on with the good work, therefore 2WI can be heard on Sunday nights at 8 p.m. and 2ACP on Saturday evenings at 8 p.m. 2LY has excellent coverage from Newcastle to Canberra and listeners will have no difficulty whatsoever in hearing him. This transmission is also relayed by several on 144 Mc. to cater for those who inhabit this band.

I have collected the notes for this month and would like to thank those who co-operated by supplying news of activities on the various bands; not forgetting 2PK who can operate on 376 Mc. and looking for more contacts. Such enthusiasm!

It is possible that these notes in future will be written by a different hand and if such is the case we would earnestly request that the same co-operation be extended to the new scribe whenever he may be. He will help us to keep the "dreaded story" devoid of Q signals and too much personal "twinkling" which is evidenced on occasions in other columns. What we want is real news and descriptions of any new and interesting equipment for v.h.f.s. So when these thoughts in mind we leave you to it and may 1949 be as successful as 1948 on frequencies above 50 Mc.

VICTORIA

50 Mc.—There is not a great deal to report this month. With the cessation of Special E, for the time being at least, activity has dropped somewhat although the band has by no means been dead and contacts with our country stations have continued. 2BKT, with 2ZL and 2TU, 2VH help keep our country boys interested. 2UI at Tatura has worked 2ACL at Red Hill, a distance of 137 miles with very good signals all ways. 3D1 at Hornsby has still been looking for Melbourne contacts and is on the air mostly from 8 p.m. onwards; he has not broken through since the occasion reported in the last issue.

3V1 at Red Hill now has his beam 42 feet high and is getting much better results, he can now work the Ballarat stations fairly easily. The usual contacts with the banders in Melbourne and 2BD has had the bad luck to get a severe burn, he is not on as much as of yore; however by using n.b.f.m. he is able to keep in touch with the band.

144 Mc.—Activity has been at a fairly high level during the month, with newcomers to the portable mobile work was done on the evening of 20th

February by 3YS on Pretty Sally Hill, returning from the N.E. Zone Convention. He contacted 8BQ and 8CP from the top of the hill and then worked them mobile coming down, when the signals began to fade he went back up the hill and worked them on the top. It looks as though the hill must act as a reflector and this may explain anomalous results obtained by certain stations on both 50 and 144 Mc.

3D0 of Hornsby should be on the band looking for contacts by the time this appears. His rig is 6J5 ex. two 8F6's as doublers, 832 tripler, 928B mod. and a 200 watt transmitter, a 200 watt 8K4G-6J6 job. 2ZL of Ballarat is now driving a 25T from his 522 and using up to 60 watts input. His converter is interesting, it uses through line circuits and gives very good results. He is building a replica which he is going to lend to Melbourne stations to obtain complete information works 3ABA at 9 p.m. on Thursdays and Saturdays and then looks for other Melbourne stations.

3BW at Portarlington now has his GAK6-GAK6 6J6 band-pass converter going well and is much more active on the band. 3AK1 is also getting good results on the band. 3AII has a beam which last has a beam giving good stack, it consists of two four element w.a. beams stacked half wave apart and fed with 300 ohm line.

A field day will be held on Sunday, 6th March. 3ABA at One Tree Hill near Christopher Hills, will work all stations including 3ANW, 3VL and 3VF. 3ANW was portable on Mt. Buninyong and had eight contacts (2ZL and 3ABJ in Ballarat, 3VF in Drysdale, and the rest were with Melbourne stations). 3AII was also portable in the Red Hill district, but complete details are not available at present.

580 Mc.—An interesting demonstration of 580 Mc. gear was given at the March V.H.F. Group meeting. 3B9 had a transceiver using a 955 with a 100 watt power supply and a 200 watt reflexed antenna. 3AK2 used a half wave line transceiver. 3RR had a push pull oscillator using RL18s with plate and cathode lines, and SIM had a transceiver using a single RL18 with a quarter wave line.

Others who have been experimenting with the band are 3XA, who has been trying out a 6J6C SCR who has a 15E working; and 3QO who has push pull RL18s with cathode and plate lines, the plates being tapped down the line. This set-up can be easily received by changing the grid leak; SIM and 3QO have worked 200 Mc. at 144 Mc. both ways so a two way contact is possible on the band.

The V.H.F. Group would like to thank John Belcher for his prompt action in obtaining a new member. We hope to be able to add many more. This should enable quite a few more chaps to get gear going on this very interesting band.

WESTERN AUSTRALIA—Compiled by VK6FC

The 50 Mc. band seems to have packed up for February. The activities of November, December and January were just absent. Metropolitan Amateurs, 6LW and 6PC, etc., heard nothing. 6WG at Albany likewise. No news from 6HM Kalgoorlie but it is fairly safe to say that if 6WG at Albany had nothing, neither did 6HM at Kalgoorlie.

Townsville, Cairns and Brisbane Radio Ranges have been heard during February at good strength from time to time in Perth, but no sign of any stations at 50 Mc. in the state of Victoria or Tasmania. We are wondering what March holds in store for us. 6EC at Minding had his share of excitement having worked five VKAs, three VK5s, heard a VK2 and VK4. I understand that 6DW at Bruce Rock still needs to work a VK6 before he can qualify for W.A.S.

CORRESPONDENCE

GENTLEMAN'S AGREEMENT

362 Anzac Highway, Mornington, S.A.

Editor "A.R.", Sir,

With the temporary absence from Home Radio of VK5FE, it is up to someone else to wield the battle axe against the phone QRM on the low frequency bands. The 7 Mc. band. Many a time Ted got to his feet at VK5 meetings and "went to town," verbally, on the previously mentioned offence and each time the blower was wasted from the VK5 faces and put out to the chagrin of the poor States.

But whatever the State, you will hear the phone down that end of the band, blasting out the DX. I wont say rare DX, because when the c.w. band is left clean, the DX is there and you only need a little integrity to get it.

There is argument for and against it. Admittedly it is a gentleman's agreement, to keep out phone.

but what about the chap who wants to try a new modulator and has only one crystal, and all the other exceptions. Really to be fair to all, no perfect agreement can be reached, but surely 80 Mc. out of 200 could be spared for the chap who wants that elusive 2S for 7 Mo. W.A.C.

The story goes again, "I work on 20." But although you can't remember hearing phone on the air, I put the chap where he must get out about c.w. The division of bands by "Gentleman's Agreement" must be International, but how can it be Internationally successful, if we can't keep the agreement here in VK, so what about it chaps.

—ROB. S. GURK, VK5RG.

FOR SALE, EXCHANGE, WANTED

9d. per line, minimum 2-.

Copy must be received by 15th of month. Remittance must accompany advertisement. Calculation of cost is based on an average of six words per line.

FOR SALE—Bendix BC221 Frequency Meters complete with spare set valves, crystal, and calibration book containing operating instructions, but less carrying case, new condition and to arrive from England shortly, £25 f.o.r. Melbourne. Brand new and tested in England 832A valves also to arrive, £3 each f.o.r. Melbourne. Sockets for 832 at 14/6 each also arriving. Order early to ensure delivery. Terms: half deposit, balance on arrival. R. H. Cunningham, 62 Stanhope St., Malvern, Vic.

FOR SALE—Pair 30v. Selsyns 25/-; pair 110v. Selsyns 52/6; BC342 receiver, perfect, fully modified as per "QST"; with 110v. trans., £40; BC453 for Q5'er, perfect cond., £5; Biley 455 Kc. Crystal, £1; 0-0.5 amp. r.f. meters, 13/6; Ceramic butterfly condensers, 750v. new; 12/6; IN34s, 11/- following tubes new and boxed 282B £3/10-. 815 £2/10-. 832 £2, 636 14/6, 6C4 9/6, 2AC3 25/-; Call at 4 Kenilworth Grove, Glen Iris, or ring UY 6256 (evenings), K. McTaggart, gart VK3NW.

FOR SALE—S20R Hallicrafters Receiver, excellent order, £40; Palec 2" C.R.O. complete, £20; FS6 Transceiver, new valves, no power pack, £6; Palec V.C.T. Valve Tester, new, £2; Weston 695 Mod. Osc., needs attention £10. VK7WT, R. A. Milledge, 8 Montagu St., Newtown, Tas.

WANTED—One 18-pin cable connector, one co-ax. connector for Bendix 522. Please write direct and state price to VK6WG, Box 42, Albany, W.A.

WANTED—455 or 465 Crystal. J. Murphy, 41 Forsyth St., West Ryde, N.S.W.

SZ2 TRANSMITTER (or similar type) wanted, either a.c. or d.c. operation. Write, stating price, particulars to G. Laver, Fish Creek, South Gippsland.

RED  **LINE**

TRANSFORMERS OF DISTINCTION

LINE TO VOICE MATCHING TRANSFORMERS

The transformers described in this section are complete units, those listed in the previous month, and are intended to match 500 or 250 ohm output lines to any number of speakers from one to twenty inclusive.

They are high efficiency units with interleaved cores and low insertion loss. Although in many cases their nominal specifications appear suitable for direct coupling of valves to speaker voice coils, no provision has been made to prevent saturation due to superimposed direct current, and they should not be used for this application.

ITEM 65.

Type No. LV10

Primary Z: 1000 ohms tapped 500 ohm-5W
 Secondary Z: Speaker V-Coil 2 ohms
 Base: 2 5/8" x 2 3/4" x 2 1/4" H Wgt. 1lb 8 ozs
 Mntg: MH1B "S" is 7-6"

Base plate fits standard 8" speakers.

No. Speakers matched: 500 ohm-1 or 2.

No. Speakers matched: 250 ohm-2 or 4.

ITEM 66.

Type No. LV20

Primary Z: 2000 ohms tap 1500 ohm, 5W.
 Secondary Z: Speaker V-Coil 2 ohms
 Base: 2 5/8" x 2 3/4" x 2 1/4" H Wgt. 1lb 8 ozs
 Mntg: MH1B "S" is 7-6"

Base plate fits standard 8" speakers.

No. Speakers matched: 500 ohm-3 or 4.

No. Speakers matched: 250 ohm-6 or 8.

ITEM 67.

Type No. LV30

Primary Z: 3000 ohms tap 2500 ohm, 5W.
 Secondary Z: Speaker V-Coil 2 ohms
 Base: 2 5/8" x 2 3/4" x 2 1/4" H Wgt. 1lb 8 ozs
 Mntg: MH1B "S" is 7-6"

Base plate fits standard 8" speakers.

No. Speakers matched: 500 ohm-5 or 6.

No. Speakers matched: 250 ohm-10 or 12.

ITEM 68.

Type No. LV40

Primary Z: 4000 ohms tap 3500 ohm, 5W.
 Secondary Z: Speaker V-Coil 2 ohms
 Base: 2 5/8" x 2 3/4" x 2 1/4" H Wgt. 1lb 8 ozs
 Mntg: MH1B "S" is 7-6"

Base plate fits standard 8" speakers.

No. Speakers matched: 500 ohm-7 or 8.

No. Speakers matched: 250 ohm-14 or 16.

ITEM 69.

Type No. LV50

Primary Z: 5000 ohms tap 4500 ohm, 5W.
 Secondary Z: Speaker V-Coil 2 ohms
 Base: 2 5/8" x 2 3/4" x 2 1/4" H Wgt. 1lb 8 ozs
 Mntg: MH1B "S" is 7-6"

Base plate fits standard 8" speakers.

No. Speakers matched: 500 ohm-10 or 11.

No. Speakers matched: 250 ohm-16 or 20.

The correct value of primary impedance for parallel arrangement for equal distribution of the output of an amplifier is found by multiplying the number of speakers by the line impedance. Take, for example, a 30 watts amplifier feeding six speakers from a 500 ohms line. The required primary impedance is 500 ohms divided by the number of speakers in parallel multiplied by the line impedance, i.e., 6×500 , which equals 3000 Thus, Type LV30 would be selected, as this unit has a primary impedance of 3000 ohms, and the six speakers would be served from the 300 ohms of the output transformer, as 3000 divided by 6 equals 500.

Type LV 30, however, will also serve for 12 speakers, if required, but they would then be placed in parallel across the 250 ohms tappings on the transformer, as 3000

divided by 12 equals 250 ohms, and the reflected load would still be correct.

In many installations, however, owing to varying noise levels and other modifying factors, each speaker may be called upon to deliver different amount of power. In these circumstances, the primary impedance may be determined by applying the following formula:

$$ZX = \frac{W}{Z}$$

where Zx equals the primary impedance to be determined.

Z equals the value of line impedance to be used.

W equals the power in watts from the amplifier.

As an example, a 30 Watts amplifier using 500 ohm line output is to drive 3 speakers. For each speaker is to have the following power distribution:

| Speaker No. | Watts | Method of Calculating Impedance |
|-------------|-------|--|
| 1 | 10 | $Zx = Z + \frac{W}{Z}$ |
| 2 | 8 | $Zx = Z + \frac{W}{Z}$ |
| 3 | 3 | $Zx = Z + \frac{W}{Z}$ |
| 4 | 5 | $Zx = Z + \frac{W}{Z}$ |
| 5 | 4 | $Zx = Z + \frac{W}{Z}$ |
| | | Substituting: $LV20$ (2000 ohms) for speaker No. 2 and $LV40$ (3500 ohms) for speaker No. 5 means that standard units may be used, with a slight decrease in power to speaker No. 2 and a slight increase in power to speaker No. 5. |

These five transformers when wired in parallel would present a terminal impedance of 515 ohms approximately which is a negligible degree of mismatching.

HIGH FIDELITY LINE TO VOICE COIL TRANSFORMERS

The following high level line to voice coil or recording head input transformers are complementary to the "AF" and "AW" series shown last month. These transformers are high fidelity units with an individual insertion loss of not greater than 0.5 db and a frequency range +/- 0.5 db 25 cps to 15,000 cps.

Referring to their dimensions will indicate the large core structures adopted to keep iron distortion to negligible proportions by the use of low flux inductions at the maximum signal voltages incurred.

ITEM 70.

Primary Z: 500 ohms 34db 15 Watts
 Secondary Z: 15 ohms Voice Coil
 Base: $2\frac{3}{4}$ " x 27-8" x 3-7-16" H Wgt. 3lbs.
 Mntg: V14 "S" is 1 1/4"

ITEM 71.

Primary Z: 500 ohms 39 db 45 Watts
 Secondary Z: 12 ohms tapped 6 ohms
 Base: $4\frac{1}{2}$ " x 4 x $3\frac{3}{4}$ " H Wgt. 8 lbs.
 Mntg: VS10 "S" is 2 1-8"

ITEM 72.

Primary Z: 500 ohms 39 db 45 Watts
 Secondary Z: 8 ohms tapped 4 ohms
 Base: $4\frac{1}{2}$ " x 4 x $3\frac{3}{4}$ " H Wgt. 8 lbs.
 Mntg: VS10 "S" is 2 1-8"

ITEM 73.

Primary Z: 500 ohms 39 db 45 Watts
 Secondary Z: 2 ohms tapped 0.5 ohms
 Base: $4\frac{1}{2}$ " x 4 x $3\frac{3}{4}$ " H Wgt. 8 lbs.
 Mntg: VS10 "S" is 2 1-8"

ITEM 74.

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